

Appl. No. 10/089,315
Preliminary Amendment

REMARKS/ARGUMENTS

The foregoing amendment is presented for the purpose of more particularly pointing out and distinctly claiming applicants' contribution to the art.

Applicants wish to express their appreciation to the Examiner for the courtesy extended to applicant and his counsel on June 18, 2003 at the interview which took place at the U.S. Patent & Trademark Office with Examiner Bareford.

At the interview, references which were cited in the international phase; namely, *Champagne* (US 4,915,906), *Littauer* (US 3,497,434), and the Japanese reference 61-124679, were discussed. In addition, the Examiner called to applicant's attention three additional references; namely, Japanese document 11-350103, Japanese document 60-086284 and US Patent of *Bennett* (6,471,851).

The *Champagne* patent is directed to providing coatings by plasma spraying operations. In contrast, the present invention, as now more clearly set forth in the claims presented herewith, provides a coating which is used for submerged or partially submerged marine surfaces which coating is applied by electric arc spray, not plasma spray. Furthermore, applicant's coating does not require a bond-coat to assist in the adhesion process. No disclosure is found in *Champagne* of providing a coating which would be good for submerged or partially submerged marine environments to provide anti-fouling and corrosion resistant properties. Thus, a person skilled in the art faced with the problem of fouling and corrosion on surfaces that are submerged or partially submerged, would find no teaching or suggestion in *Champagne* as to how to overcome this problem.

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According to the *Littauer* patent, the disclosed process requires the use of an external power source. Applicant's claims exclude the use of an external power source and therefore represent an unexpected advantage with respect to *Littauer*.

Japanese document of *Kuraray* (61-124679) shows a system of flame spaying a zinc-aluminum alloy on a textile in order to reduce the adherence of aquatic organisms. The textile materials mentioned by *Kuraray* include nets, string, rope and similar types of equipment used as fishing equipment which are treated in order to prevent adherence of marine and aquatic organisms. *Kuraray* does not address the problem of corrosion and therefore would not provide any guidance to a person having ordinary skill in the art and faced with a problem of corrosion and fouling in a marine environment.

The Japanese document 60-086284 relates to an anti-fouling coating for steel. The disclosed solution to the problem of fouling is to weld a layer of a tin alloy onto the surface of the steel. Applicant's invention clearly does not utilize the technique of welding and therefore constitutes a significant advantage with respect to the welding of layers of another material onto the surface of the steel article that is submerged or partially submerged in a marine environment.

With respect to the Japanese application 11-350103 which has a publication date of December 21, 1999, the abstract which is provided by the Examiner discloses application of a thermal spray to parts of the backhoe and also the use of a galvanic anode B which is mounted on the boom part of the backhoe. This then, according to the abstract, is covered with an anti-fouling paint or a zinc or copper foil.

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Unlike the Japanese reference, applicant's invention provides both anti-fouling and anti-corrosion properties by directly spraying the surface with a zinc or zinc-based alloy coating produced by an electric arc, combustion wire, or combustion powder type thermal spray process. In the Japanese reference, the paint provides the anti-fouling function. Also, there is no disclosure in the Japanese reference of providing an electric arc, combustion wire or combustion powder thermal spray process.

Bennett (US 6,471,851) discloses thermal spray coatings applied to concrete structures where a zinc or zinc alloy coating is made the sacrificial anode to protect reinforcing-steel in concrete. The *Bennett* invention requires the presence of a humectant on the surface of the concrete; it is an intermediate between the concrete and the thermal spray coating. Claim 1 specifies directly coating the surface; i.e., without an intermediate coating; and therefore, distinguishes from *Bennett*.

Applicants also invite attention to the declaration of inventor Edwin Y. Call, which has been made of record in this application, presents additional comments concerning the prior art cited during the international phase.

For reasons set forth above, it is respectfully submitted that the claims submitted herewith are patentable over the prior art of record.

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Favorable action at the Examiner's earliest convenience is respectfully requested.

Respectfully submitted,

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Applicant: CALL, Edwin Young
Serial No.: 10/089,315
Filing Date: 08/29/2002
Title: System for Protection of Submerged Marine Surfaces

Papers Submitted: 1) Transmittal Letter; and
2) Preliminary Amendment

Sender: RGW/sjr
Date Sent: August 29, 2003
Atty. Dkt. No.: 32867W0031



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